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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,725	10/03/2003	Robert C. Lam	01170/00078	6124
43215	7590	01/11/2006	EXAMINER	
BORGWARNER INC. PATENT DEPARTMENT 3850 HAMLIN ROAD AUBURN HILLS, MI 48326-2872			SPERTY, ARDEN B	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 01/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/678,725

Applicant(s)

LAM, ROBERT C.

Examiner

Arden B. Sperty

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5,7 and 9-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,7 and 9-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**NON-FINAL OFFICE ACTION**

1. Applicant's claim amendments and comments, submitted 10/05/2005, have been entered.
2. All prior art rejections, and the indication of allowable subject matter, stated in the previous office action are WITHDRAWN due to an error in the examiner's interpretation of the claims. At this time it appears that the examiner was previously misinterpreting the claims by concluding that a particular amount of resin was implied by the claim language. The examiner was interpreting a specific wt % of resin with respect to the fibrous base material. Upon comparison of the claims with the specification, it is apparent that the percentages recited in claim 1 are irrespective of the resin content. Basis for this conclusion can be found throughout the specification. Page 6, lines 4-9, describe the fibrous base material, with percentages expressed, the percentages irrespective of a resin. The specification refers to the amount of resin, with respect to the entire friction material, as about 45 to 65 wt% (page 10, lines 4-7). The specification refers to the amount of resin, with respect to the fibrous base material alone, in an amount of about 25 to 70% (page 11, lines 22-26). The specification does not suggest an amount of resin, with respect to the fibrous base material, of 20% or less, as was previously interpreted and indicated as allowable subject matter.
3. Incidentally, Applicant has argued that resin in an amount of 20% or less, with respect to the fibrous base material, is encompassed by the instant specification, when in fact that amount of resin is not encompassed or enabled. Due to the previous misinterpretation, rejections based on said misinterpretation, and arguments submitted

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by Applicant based on said misinterpretation, Applicant's comments submitted with the response of 10/05/05 are rendered moot; it would not make sense to consider the comments since they are directed to a structure predicated on misinterpretation.

4. Due to the previous interpretation error, the examiner has set forth herein a detailed description of the present claim interpretation. The claims are newly rejected in view of the clarified interpretation, and this action is therefore Non-Final.

#### ***Claim Interpretation***

5. Claim 1: The claim is drawn to a friction material, consisting essentially of a fibrous base material. The fibrous base material has a fiber content of about 75 to 85%, and a filler content of about 5 to 25%. The fiber content, which totals 75 to 85% of the fibrous base material, includes about 15 to 25% cotton fibers, about 40 to 50% aramid fibers, and about 10 to 20% carbon fibers. In other words, the sum of the cotton fibers, aramid fibers, and carbon fibers is 75 to 85% (by wt) of the fibrous base material. The fibrous base material is further impregnated with a resin, in an unclaimed or unimplied amount. The amounts of each component expressed in percentages are irrespective of the resin content.

6. Claim 10: The claim is drawn to a friction material, consisting essentially of a fibrous base material. The fibrous base material has a fiber content of about 75 to 85%, and a filler content of about 10 to 35%. The fiber content, which totals 75 to 85% of the fibrous base material, includes about 10 to 60% of less fibrillated aramid fibers, about 5 to 30% cotton fibers, and about 2 to 25% carbon fibers. In other words, the sum of the

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cotton fibers, aramid fibers, and carbon fibers is 75 to 85% (by wt) of the fibrous base material. The fibrous base material is further impregnated with a resin, in an unclaimed or unimplied amount. The amounts of each component expressed in percentages are irrespective of the resin content.

7. Although the claims ~~are~~<sup>are</sup> interpreted as stated in the previous paragraph, the structure, and thus the product currently searched and examined, remains unclear, due to the internal discrepancies as stated below in the section *Claim Rejections- 35 USC 112*.

#### ***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 2 recites a fibrous base "layer". There is insufficient antecedent basis for this limitation in the claim. Claim 1 recites a friction material, and a fibrous base material, but not a "fibrous base layer." It is presumed that the fibrous base material is intended. Appropriate correction is required.

10. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim is incomplete because the claimed ranges do not always equate to 100%. The claim includes a fibrous base material consisting essentially of up to 85% fibers, and 5% filler, however these combined only total 90%. Thus, 10% of the product is unaccounted for. Claim 10 is similarly rejected, because

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85% fibers and 10% filler accounts for only 95% of the fibrous material. Thus, 5% of the product is unaccounted for.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-5, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5646076 to Bortz.

13. The Bortz reference teaches friction material composites comprising a nonwoven textile component and polymer impregnation (Abstract). The nonwoven component includes staple fibers (col. 5, lines 4-9) formed into a nonwoven carded web. The fibers are described throughout the reference, and include low friction carbon fibers (col. 6, line 45), and higher coefficient of friction cotton fibers (col. 6, line 54), heat resistant aramid fibers (col. 7, line 1). The reference is silent with respect to the exact amounts of each of the fiber types, because the ultimate intended environment for the friction material predicates the fibrous composition, and the intended environments or uses are varied. This is indicated at column 6, line 60, to column 7, and throughout the reference. Absent a showing of unexpected results with the claimed amounts, the proportions appear to be within the ordinary level of skill of one in the art, whom the reference indicates will determine functional and preferred ranges. *In re Aller*.

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14. Non-fibrous particulate filler materials may also be included (col. 10, lines 25-38) in amounts generally less than 50% by wt of the nonwoven material, more preferably in amounts less than 40% by wt. This range encompasses the range claimed by Applicant. Further, absent a showing of unexpected results, it would have been obvious for one of ordinary skill in the art to optimize the amount of the particulate material within the disclosed range. *In re Bosch*.

15. Finally, the nonwoven material is impregnated (col. 8, lines 26-61) with a material selected for friction and wear properties, processability, and cost (col. 8, lines 45-47).

16. The reference further teaches a preferred void volume of more than 30%, more preferably more than 50% (col. 10, lines 54-64).

17. Regarding claim 5, the reference mentions that woven forms of the textile material are known, although not preferred by some (col. 2, lines 41+). An embodiment need not be preferred in order to meet claim limitations.

18. Claims 7 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5646076 to Bortz as applied to claim 1 above, and further in view of US Patent 5707905 to Lam et al.

As stated above,

The Bortz reference teaches friction material composites comprising a nonwoven textile component and polymer impregnation (Abstract). The nonwoven component includes staple fibers (col. 5, lines 4-9) formed into a nonwoven carded web. The fibers are described throughout the reference, and include low friction carbon fibers (col. 6, line 45), and higher coefficient of friction cotton fibers (col. 6, line 54), heat resistant aramid fibers (col. 7, line 1). The reference is silent with respect to the exact amounts of each of the fiber types, because the ultimate intended

environment for the friction material predicates the fibrous composition, and the intended environments or uses are varied. This is indicated at column 6, line 60, to column 7, and throughout the reference. Absent a showing of unexpected results with the claimed amounts, the proportions appear to be within the ordinary level of skill of one in the art, whom the reference indicates will determine functional and preferred ranges. *In re Aller*.

Non-fibrous particulate filler materials may also be included (col. 10, lines 25-38) in amounts generally less than 50% by wt of the nonwoven material, more preferably in amounts less than 40% by wt. This range encompasses the range claimed by Applicant. Further, absent a showing of unexpected results, it would have been obvious for one of ordinary skill in the art to optimize the amount of the particulate material within the disclosed range. *In re Bosch*.

Finally, the nonwoven material is impregnated (col. 8, lines 26-61) with a material selected for friction and wear properties, processability, and cost (col. 8, lines 45-47).

19. The Bortz reference does not specify the use of "less fibrillated" aramid fibers. The Lam '905 reference teaches advances in aramid fibers used in friction materials (col. 8, lines 10-63) such as those taught by Bortz. The aramid fibers of the Lam reference are less fibrillated, effecting more and larger pores than a typical fibrillated aramid fiber, such as is used in Bortz. More and larger pores are advantageous for permeability properties. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to employ the less fibrillated fibers of the Lam reference, in order to provide more and larger pores for improved permeability and other properties. Thus, the limitations of claim 10 would have been met. The same structure would also meet the specific pore size as required by claim 7. The pores resulting from the less fibrillated aramid fibers, as taught by Lam, have an average pore



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size of about 2.0 to 15 microns in diameter (col. 8, lines 19-22). Claim 7 depends from claim 1, which requires aramid fibers of no specific degree of fibrillation.

### ***Double Patenting***

20. The pending claims are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 9 and 21 of U.S. Patent No. 6630416. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed inventions overlap in scope and detail.

21. The pending claims are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending Application No. 10/678720. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claimed inventions clearly overlap.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

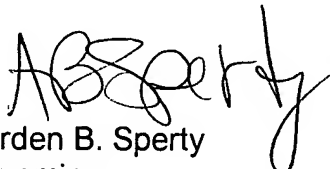
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arden B. Sperty whose telephone number is (571)272-1543. The examiner can normally be reached on M-Th, 08:00-16:00.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571)272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Arden B. Sperty  
Examiner  
Art Unit 1771

January 5, 2006

  
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